BOTANY.

Memoirs of the Torrey Botanical Club.—Nearly a year ago the first number of the Memoirs appeared containing Professor Bailey's Studies of Carex. In August following, the second number was issued, containing the Marine Algæ of the New Jersey Coast and adjacent waters of Staten Island, by Isaac C. Martindale. The list is an annotated one, and is based on notes and collections made by the author during a period of twenty years. It embraces 91 genera, 183 species, and 41 varieties.

The third number of the Memoirs reached subscribers late in January. It is devoted to an account, by Richard Spruce, of a collection of the Hepaticæ, collected by Dr. H. H. Rusby on the Eastern slope of the Bolivian Andes in 1885–6. The paper bears the title "Hepaticæ Bolivianæ, in Andibus Boliviæ orientalis, Annis 1885–6, a cl. H. H. Rusby, lectæ." Twenty-two genera, and 97 species are noted; of the latter no less than twenty-five are here described for the first time.

The Missouri Botanical Garden.—The first annual report of the director, Dr. William Trelease, sets forth the objects contemplated and provided for in the will of Mr. Shaw, the founder of the garden. They are briefly as follows:

1. To continue the ornamental features of the garden.
2. To add to its botanical usefulness by additions to the growing plants.
3. To provide for a system of correct labeling.
4. To provide fire-proof quarters for the Engelmann herbarium, and also for additions to the general herbarium.
5. To improve and enlarge the botanical library.
6. To secure a botanical museum.
7. To assist in the completion of the flora of North America, by the publication of monographs.
8. To ultimately provide for research in vegetable histology, physiology and pathology.
9. To make the garden useful for horticultural instruction.
10. To take steps looking to the early appointment of six "garden pupils."

11. Eventually to appoint "associates" to the director, who are to be specialists in some department of Botany.

From surveys made it appears that in the garden proper there are 9.4 acres; in the Arboretum, 20.5; in the Fruticetum, 8; Old Vegetable Garden, 3.5; Grove, 0.6; Lawn, 2.7; making in all 44.7 acres.

We may hope to see, in time, an American Kew at St. Louis.—CHARLES E. BESSEY.

Ellis' "North American Fungi."—About the middle of February centuries XXIV. and XXV. of this great distribution of the Fungi of North America were distributed to subscribers. It is needless to speak of the fine specimens, or of the neatness with which the mechanical work has been done, for these are already well known to most readers of the NATURALIST.

Century XXIV. contains a few Basidiomycetes (about twenty pieces), the remainder being mostly Ascomycetes. Among the latter is an interesting new species, *Plowrightia symphoricarpi*, occurring on *Symphoricarpus occidentalis* in Montana. Botanists will recognize in this a congener of the familiar Black Knob of the plum.

Century XXV. contains about twenty-five Urdineæ and Ustilagineæ. Among the latter are the interesting *Ustilago andropogonis* of Kellerman and Swingle, and the apparently related *Sorosporium ellisii* of Winter, both infesting the inflorescence of *Andropogon provincialis*. A dozen fine specimens of Slime Moulds (in boxes) closes this vnluable century. —CHARLES E. BESSEY.

Seymour and Earle's Economic Fungi.—During the month of January, the first foretaste of a new distribution of the fungi made its appearance. "The object of this series," the authors say in their announcements, "is chiefly to supply a set of authentic specimens to illustrate the diseases of useful and noxious plants, for the use of Agricultural Experiment Stations, and persons interested in the subject from a practical standpoint." The specimens before us (Nos. 1 to 50) indicate that the authors have done this work well and wisely. Six species affecting Vitaceæ, and twenty-eight upon Rosaceæ, are presented. Of the latter six species affect the Blackberry (*Rubus villosus*).

No station can afford to do without this set, especially when its moderate price of $3.00 per fascicle of fifty specimens is considered. We trust that the authors may meet with encouragement to warrant them in continuing their work.—CHAS. E. BESSEY.

The New Gray's Manual.—It is a significant thing that in bringing out a new edition of the familiar Manual of Botany of the Northern United States, by Asa Gray, the revisers found it necessary to extend its geographical limits westward to the 100th meridian, that is, to the middle of the Great Plains. "The rapid increase of population west of the Mississippi River and the growing need of a manual covering the flora of that section, have seemed a sufficient reason for the extension of the limits of the work westward." This action will relieve the teaching of elementary botany, in the west, of many of its embarrassments. Those who have not tried it, can have little conception of the difficulties encountered by college and high-school teachers in attempting to give to their pupils a knowledge of the local organic flora in the region lying between the Mississippi River and the Rocky Mountains.

By a hasty calculation it appears that the region covered by the Manual has been increased about 70 per cent. The species described have been increased by about 40 per cent.; however this is in part by the addition of the Hepaticæ (141 species), and a number of immigrants not included in the earlier addition. Probably the westward extension of the Manual has given it from 30 to 33 per cent. more species. The total number now described is 3298, of which 405 are said to be introduced.

It is interesting to note where this increase takes place. It appears that the Polypetalæ have gave gained 46 per cent. (289 species), the Gamopetalæ 36 per cent. (271 species), the Apetalæ 64 per cent. (121 species), the Monocotyledons 17 per cent. (115 species). In this increase certain orders stand out prominently; for example: the Leguminosæ are increased from 98 to 156, the Rosaceæ from 72 to 95, the Compositæ from 288 to 407, the Gramineæ from 168 to 250. The Gymnosperms are increased by one only (*Pinus ponderosa Douge, var., scopulorum* Engelm. in Nebraska), while through rigid revision the Cyperaceæ actually number two less than in the old edition.

In glancing through the book one meets many new plants which will have an unfamiliar look to the eastern local botanist. We found, for example, *Argemone platyceras, Cleome integrifolia, Viola nuttallii, Prunus demissa, Mentzelia ornata, Cucurbita fœtidissima, Adoxa moschatellina, Grindelia squarrosa, Aplopappus spinulosus, Eustoma russellianum, Solanum rostratum, Pentstemon cobœa, Amarantus blitoides, Elæagnus argentea, Andropogon hallii, Buchloë dactyloides, Munroa squarrosa,* etc., etc.

There is a marked spirit of conservatism dominating every part of the work. We look in vain for any recognition of the somewhat radical notions which have of late arisen in some quarters. The time-honored arrangement of orders, the time-honored genera, the time-honored rules as to capitalization, punctuation, and citation of authorities, are strictly adhered to. The Gymnosperms are still wedged in between monocotyledons and dicotyledons; Carya is Carya still, and not Hicoria; Nymphæa is Nymphæa still, and not Castalia; and even in so plain a matter as the spelling of Pirus, we have Pyrus, as in the older editions. All this, and much more like it, implies that for many years still the young botanists of America are to be made familiar with the older and quite conservative views of classification and arrangement. We had hoped for something different. Meanwhile we are glad to get the book, for it was much needed.—CHARLES E. BESSEY.

ZOOLOGY.

Zoological News.—General.—The Verhandlungen der Gesellschaft für Erdkunde (Berlin), contains an account of the biological results of the Plankton Expedition of the summer of 1889, by Prof. K. Brandt, and of the voyage itself, by Dr. Krummer. The trip seems to have been confined to the Atlantic, and returned to Kiel on November 7, after an absence of 115 days, and a run of 15,600 miles. The experience of the expedition was that the ocean, even in the tropics, was poorer in life than the North Sea and Baltic.

Protozoa.—The last report in Vol. XXXII. is by Ernst Haeckel, and concerns the curious group of organisms known as the Physemaria. These Haeckel pronounces to be sponges of affinities to the Keratosa, but modified by symbiosis with a commensal which is in most, if not in all cases, a hydro-polyp stock. Four families and eleven genera are described. In the Stannomidæ, examples of which were dredged at depths of from 2,425 to 2,925 fathoms, there is present a fibrillar